



New record of *Hydrodynastes gigas* (Duméril, Bibron & Duméril, 1854) (Serpentes, Dipsadinae) in northeastern Brazil

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Abstract

The first record of *Hydrodynastes gigas* is reported from Rio Grande do Norte, the northeasternmost state of Brazil. The new record extends this species' known geographic distribution by 796 km southeast and 173 km north from the nearest previously known localities. The new record is from an estuary, with semi-deciduous forests, mangroves, and sand dunes, in the Atlantic Forest. This is the fifth known occurrence of *H. gigas* in the Northeast Region of Brazil.

Keywords

Atlantic Forest, range extension, Rio Grande do Norte, snake, South America.

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Introduction

The genus *Hydrodynastes* Fitzinger, 1843 is distributed throughout South America and currently comprises three species. They are *Hydrodynastes bicinctus* (Hermann, 1804), known from Brazil (type locality: Novo Progresso, Pará), Colombia, French Guiana, Guyana, Venezuela and Suriname (Murta-Fonseca et al. 2015; Nogueira et al. 2019); *Hydrodynastes gigas* (Duméril, Bibron & Duméril, 1854), known from Argentina (type locality: Corrientes), Brazil, Paraguay, Peru, French Guiana, Bolivia and Venezuela (Murta-Fonseca et al. 2015; Nogueira et al. 2019); and *Hydrodynastes melanogigas* Franco, Fernandes & Bentim, 2007, endemic to Brazil (type locality: Palmas, Tocantins) and restricted to the northern Cerrado (Nogueira et al. 2019). Snakes of this genus have preocular and subocular scales, supralabials not in contact with the orbit, the anal plate entire, the

rostral scale not modified, internasal scales two, chinshields in two or more pairs, and dorsal scales in odd numbered rows with reduction (Franco et al. 2007; Silva Jr et al. 2012). Snakes of the genus *Hydrodynastes* are semi-aquatic and feed mostly on frogs, fishes, mammals, and other snakes (Strüssmann and Sazima 1993; López and Giraudo 2004; Giraudo et al. 2014).

Hydrodynastes gigas is widely distributed in Brazil, occurring in the Amazonia, Cerrado, Pantanal, Atlantic Forest, and Pampas ecoregions (Nogueira et al. 2019; named “biomes” by IBGE 2019). In the Northeast Region of Brazil, only four records, from the states of Maranhão, Piauí, and Paraíba, are published (Nogueira et al. 2019; Fig. 1). In this study, we report the first record of *H. gigas* in Rio Grande do Norte (RN), the northeasternmost state of Brazil, which extends the known geographic distribution of this species.

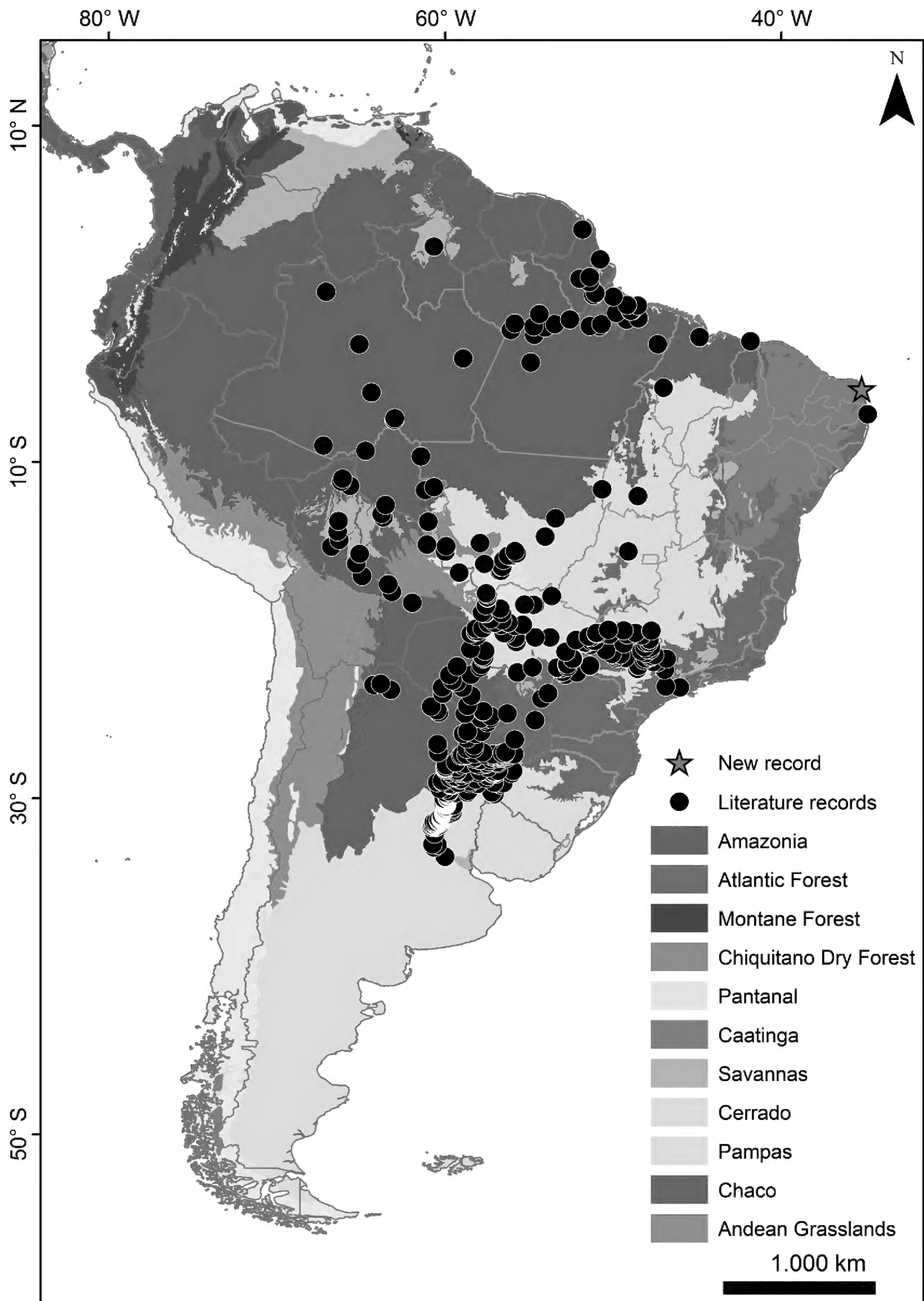


Figure 1. Geographic distribution of *Hydrodynastes gigas*, including the new record. Literature records based on Nogueira et al. (2019).

Methods

A specimen of *Hydrodynastes gigas* was killed by local residents and brought by a researcher colleague to the Herpetology Lab of the Federal University of Rio Grande do Norte (UFRN). The specimen was identified by color pattern, morphometry, and pholidosis. It was compared to information published by Franco et al. (2007) and Murta-Fonseca et al. (2015). We took body

measurements (snout–vent length, SVL; tail length, TL; head length from tip of snout to quadrate articulation, HW) to the nearest millimeter with a flexible ruler. We counted the number of anterior, midbody, and posterior rows of dorsal scales, the number of ventral, subcaudal, supralabial, and infralabial scales, determined the presence and number of internasal, subocular, preocular, postocular scales, and pairs of chinshields, and checked for the presence of apical pits in the dorsal scales (Franco

et al. 2007). Our description of the color pattern is based on photographic records of the specimen prior to preservation. The sex was determined by the eversion of hemipenis during fixation.

Results

Hydrodynastes gigas (Duméril, Bibron & Duméril, 1854)

New record (Fig. 1). UFRN 5584. BRAZIL • 1 adult ♂ (Figs 2, 3); Rio Grande do Norte state, Extremoz municipality, Graçandu beach; 05.644°S, 035.222°W; 4 m a.s.l.; 2 Nov. 2019; Marcel Medeiros leg.; found in residential area near a body of freshwater (Pitangui lagoon).

Identification. Dorsum creamy-brown with saddle-like black blotches (Fig. 2A); venter creamy-white with black dots in three longitudinal rows (Fig. 2B). Head brown with a black postocular stripe extending posteriorly to first dorsal blotch but not extending ventrally to gular region (Fig. 2A, D). SVL 783 mm, TL 237 mm, HL 39 mm. Dorsal scales smooth, in 19-19-15 rows, apical pits present on some dorsal scales, these scales scattered uniformly on the body (Fig. 2C), ventrals 157, subcaudals 78, supralabials eight (Fig. 2D, Fig. 3), infralabials 10, anteriormost six contacting chinshields (Fig. 2D), five gular scale rows between first ventral and infralabials (Fig. 2D), internasals two (Fig. 3), suboculars three (Fig. 3), preocular single (Fig. 3), postoculars two (Fig. 3),

chinshields in three pairs (Fig. 2D), prediastemal maxillary teeth 13, enlarged postdiastemal teeth two. Color pattern, morphometry, and pholidosis match the diagnosis of *H. gigas* by Franco et al. (2007) and Murta-Fonseca et al. (2015), except for the slightly fewer number of prediastemal teeth (13 in our specimen; 14–17 recorded by Franco et al. 2007).

Discussion

Our new record extends the geographic distribution of *Hydrodynastes gigas* 796 km southeast and 173 km north from the nearest previously known localities, at Ilha Grande, Piauí state, and João Pessoa, Paraíba state, respectively. The new record is only the fifth record for *H. gigas* in the Northeast Region of Brazil. Nogueira et al. (2019) provided a voucher-based range map for *H. gigas*, based on 1594 specimens, most of them from Amazonia, Cerrado, and Chaco ecoregions (Fig. 1). Our new record was collected in an urban setting near the estuary of the Ceará-Mirim River in Rio Grande do Norte, within the Atlantic Forest. The estuary has semi-deciduous forest, mangrove, and sand dune environments and, in recent years, has experienced an accelerated growth in human impacts, mainly from tourism and shrimp farming (Soares 2010).

Hydrodynastes gigas also occurs in the Atlantic Forest of Paraíba state, immediately south of Rio Grande do Norte (Fig. 1). This species is semi-aquatic and mainly

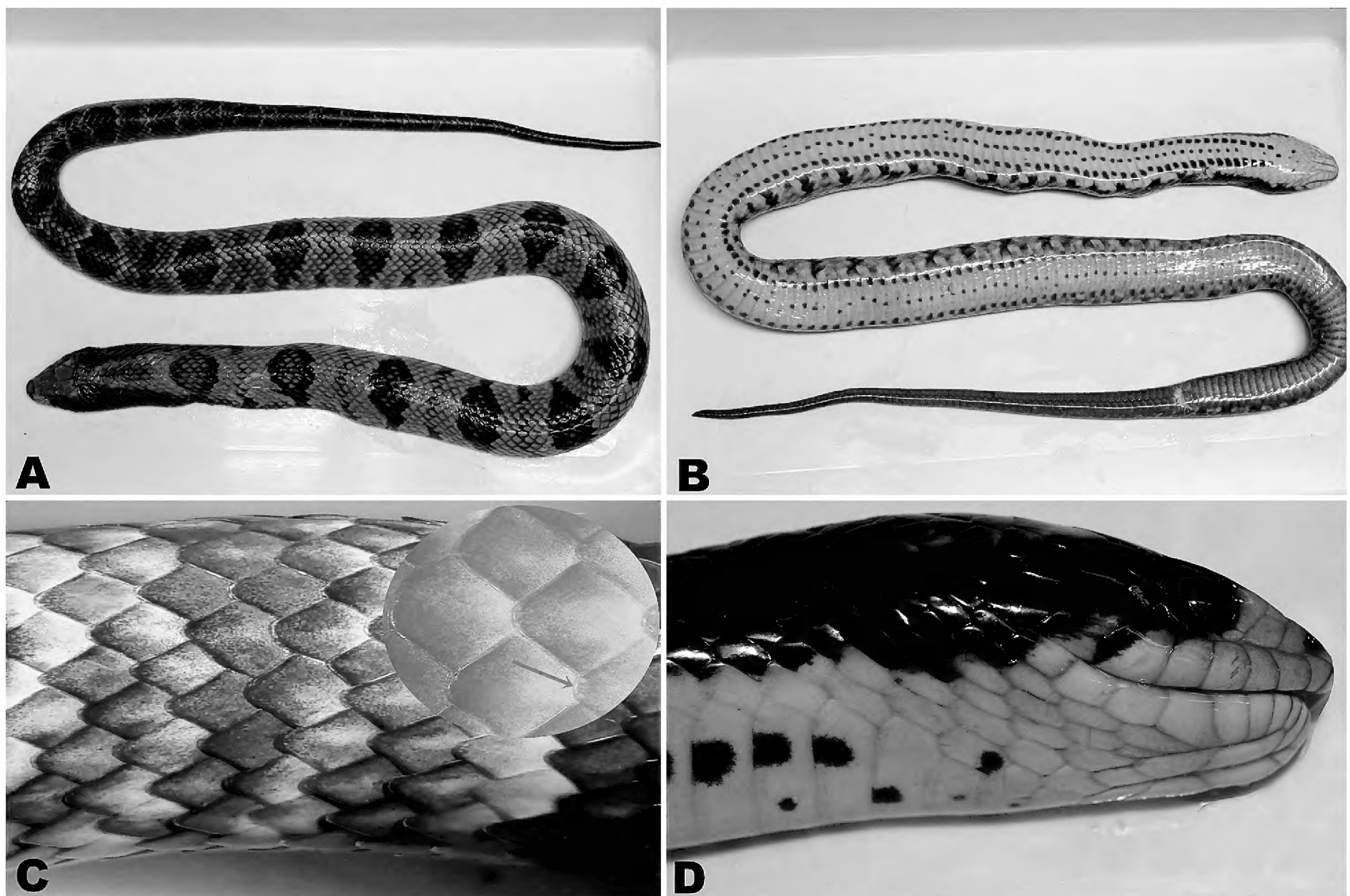


Figure 2. *Hydrodynastes gigas*, UFRN 5584 (SVL = 783 mm), prior to fixation. **A.** Dorsal view. **B.** Ventral view. **C.** Close view of dorsal scales, showing presence of apical pits in some scales (red arrow). **D.** Lateral view of the head.

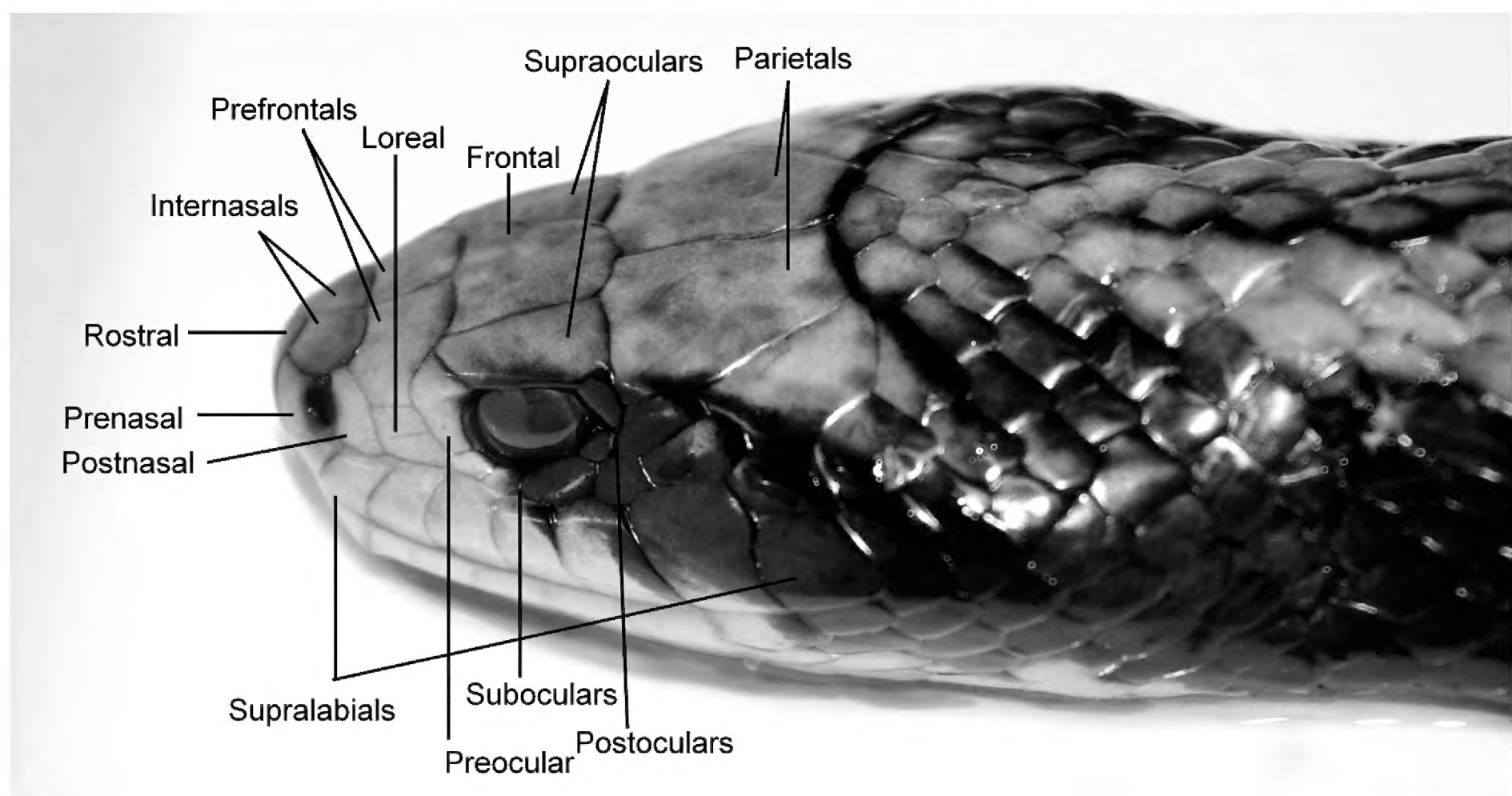


Figure 3. Close view of the head of *Hydrodynastes gigas* (UFRN 5584), showing the dorsal and lateral cephalic scales.

occurs in floodplains of large rivers, estuaries, and artificial wetlands (Giraudo et al. 2014). It is possible that the coastal, northeastern Brazilian populations may be connected to Amazonian populations via watersheds of the Caatinga ecoregion. Although *H. gigas* has not been reported for the Caatinga (Guedes et al. 2014; Nogueira et al. 2019), sampling gaps still exist in this ecoregion.

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Authors' Contributions

DLSJ photographed the specimen and described the color pattern, morphometry, and pholidosis of the specimen; RFDS prepared the distribution map; JSJ identified the specimen; all authors co-wrote and reviewed the manuscript.

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